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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,832	01/17/2002	Yong-Jun Kim	401461	5906

23548 7590 02/05/2003  
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EXAMINER
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DONG, DALEI

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 02/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/046,832

Applicant(s)

KIM ET AL.

Examiner

Dalei Dong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/046,832.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,008,582 to Asano in view of U.S. Patent No. 5,587,624 to Komaki in further view of U.S. Patent No. 6,411,032 to Shiiki.

Regarding to claims 1-3, 12 and 14-16, Asano discloses in Figures 1 to 3, an AC plasma display panel comprising "a back plate 3 (rear substrate) made of glass and a front plate 10 (front substrate) made of glass are disposed in parallel and opposite to each other. The back plate 3 and the front plate 10 are spaced a predetermined distance apart from each other by a plurality of parallel partition walls formed on the inner surface of the back plate 3. Only partition walls (barrier ribs) 1a, 1b, 1c and 1d among all the plurality of parallel partition walls are shown in the drawings. The partition walls 1a, 1b, 1c and 1d define discharge spaces 2 between the plates 3 and 10. Parallel composite electrodes each consisting of a transparent electrode 4 and a metal bus electrode 5 are formed on the inner surface of the front plate 10, and a dielectric glass layer 6 and a protective layer 7 of MgO are formed in that order on the inner surface of the front plate 10 so as to cover the composite electrodes" (column 4, line 12-26).

Asano also discloses "parallel address electrodes 8 are formed between the partition walls 1a, 1b, 1c and 1d on the inner surface of the back plate 3 perpendicularly to the composite electrodes 4, 5. Phosphor layers 9 respectively containing phosphor materials are formed on the side surfaces of the partition walls 1a, 1b, 1c and 1d, and portions of the inner surface of the back plate 3 defining the bottoms of the discharge spaces 2" (column 4, line 27-33).

Asano further discloses in Figures 4 and 5, the plasma display panel has "a back plate 3 provided with a plurality of parallel partition walls, and auxiliary partition walls extended perpendicularly to the partition walls between the adjacent partition walls. In FIG. 4, only the partition walls (barrier ribs) 1a, 1b and 1c among the plurality of partition walls, and only the partition walls 52a, 52b, 52c and 52d among the auxiliary partition walls are shown. Address electrodes 8 (FIG. 1) are extended in parallel to the partition walls 1a, 1b and 1c on portions of the inner surface of the back plate 3 defining bottoms of discharge spaces 2 formed between the adjacent partition walls 1a and 1b and between the adjacent partition walls 1b and 1c. Although the partition walls 1a, 1b and 1c shown in FIG. 4, 5 have a trapezoidal cross section, the partition walls 1a, 1b and 1c may have a cross section of any suitable shape, such as a rectangular shape or a shape defined by curves. Bus lines 5 (FIG. 1) are formed in parallel to the auxiliary partition walls 52a, 52b, 52c and 52d. The auxiliary partition walls 52a, 52b, 52c and 52d have a substantially trapezoidal or rectangular cross section. In a modification of the PDP of

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FIG. 4 shown in FIG. 5, auxiliary partition walls 54a, 54b, 54c and 54d have each opposite curved side surfaces 55 diverging toward the inner surface of the back plate 3.

However, Asano does not disclose first and second and third electrodes extending from the first and second electrodes over the discharge cell and that the area of the discharge cells differ in accordance with a ratio of efficiencies of light radiation. Komaki teaches in Figure 6a and 6b, "the sustaining electrodes S have a large width projection 25 formed at each of the pixel locations in the central portion and a small width projection 25a formed at each of the pixel locations in the peripheral portion. The sustaining electrodes S' have a large width projection 24 formed corresponding to the large width projection 25 of the respective electrodes S and a small width projection 24a formed corresponding to the small width projection 25a" (column 3, line 53-60).

However, Komaki does not teach the discharge cells differ in accordance with a ratio of efficiencies of light radiation. Shiiki teaches in Figure 1 and 3, "a addressing electrodes 3 and dielectric layers 4 are first formed on the rear glass substrate. Then material for the barrier ribs is printed thereon to form a thick layer and a blasting mask is formed on the material. The blasting mask is removed to thereby form the barrier ribs 2. Spaces between the barrier ribs are adjusted in accordance with kinds (red, green and blue) of phosphors to be filled or applied. In this example, in order to increase the luminance for blue color, the space between the barrier ribs of the luminous cell for blue color is larger than that of the luminous cell for red and green colors" (column 4, line 20-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was to have utilize the wide electrode of Komaki in combination with the adjustable discharge space in accordance with the phosphor color of Shiiki for the plasma display panel of Asano in order to provide a plasma display capable of high luminous efficacy and controlling a color temperature at the time of displaying the white color and displaying a high-quality image.

Regarding to claims 4-7 and 17-20, Asano discloses a plasma display panel comprising a rear substrate, a front substrate, a partition wall between the front and rear substrates, a fluorescent substances and address electrode and a discharging electrode.

However, Asano does not the area of the electrode differ in accordance with the ratio of efficiencies of light radiation by the fluorescent substances and that the area of the discharge cells differ in accordance with a ratio of efficiencies of light radiation. Komaki discloses in Figures 6a-7b, "The width W, area A (=W.times.L), and electric capacity of each of the large width projections 25 and 24 are each larger than those of the corresponding small width projection 25a and 24a. The luminous efficacy and the luminance are determined dependent on the width W, length L, area A, distance of a gap G, and electric capacity  $C = \epsilon \cdot (A/d)$  (A: the area of the projection, d: the thickness of the dielectric layer 22, and  $\epsilon$ : the dielectric constant of the dielectric layer 22). Namely, if the width W, length L, area A, and/or electric capacity C of the large width projections 25 and 24 are increased to set optimum values, it is possible to increase the

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luminous efficacy and the luminance thereof" (column 3, line 61-67 to column 4, line 1-5).

However, Komaki does not teach the discharge cells differ in accordance with a ratio of efficiencies of light radiation. Shiiki teaches in Figure 1 and 3, that the areas of the discharge cells differ in accordance with a ratio of efficiencies of light radiation by the respective fluorescent substances.

It would have been obvious to one of ordinary skill in the art at the time the invention was to have adjust the width and the area of the electrode of Komaki in combination with the discharge space in accordance with the phosphor color of Shiiki for the plasma display panel of Asano in order to provide a plasma display capable of high luminous efficacy and controlling a color temperature at the time of displaying the white color and displaying a high-quality image.

Regarding to claims 8-10, Asano discloses in Figures 11 and 12, "shapes of partition walls of the PDP in the third embodiment. In FIG. 11 to 13, indicated at 1a, 1b and 1c are partition walls (barrier ribs), at 62a, 62b, 62c, and 62d are narrow sections having a reduced width in the partition walls 1a, 1b and 1c, at 3 is a back glass plate, at 64a, 64b and 64c are corrugated side surfaces of the partition walls 1a, 1b and 1c, and at 65a and 65b are a base portion and a top portion, respectively, of the stepped partition walls 1a, 1b and 1c shown in FIG. 13 having steps 65c where the width changes discontinuously" (column 17, line 46-55).

Asano also teaches in Figure 11, "the partition walls 1a and 1b have narrow sections 62a, 62b, 62c, and 62d corresponding to discharge cells 65 in the discharge space 2 and having a reduced width. The narrow sections 62a and 62c are formed opposite to each other to define the discharge cell 65 in the discharge space 2, and the narrow sections 62b and 62d are formed opposite to each other to define the discharge cell 65 in the discharge space 2. The discharge cells 65 correspond to the spatial intersections of the address electrodes 8 and bus electrodes 5 (FIG. 1), respectively" (column 18, line 9-18).

Regarding to claims 11 and 13, Asano discloses the claimed invention except for the auxiliary partition walls having different widths, transverse to the connected to the main partition walls, defining the respective discharge spaces having different areas. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the width of the partition wall defining the respective discharge spaces having different area, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. *In re Venner*, 120 USPQ 192.

### *Conclusion*

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of the composition of a plasma display panel.



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U.S. Patent No. 5,717,291 to Kim.

U.S. Patent No. 5,825,128 to Betsui.

U.S. Patent No. 6,420,835 to Chen.

U.S. Patent No. 6,424,095 to Hirao.

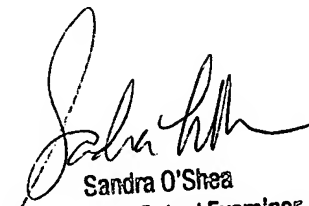
U.S. Patent No. 6,479,935 to Park.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.  
January 28, 2003

  
Sandra O'Shea  
Supervisory Patent Examiner  
Technology Center 2800